

X-ray Diffraction Study in Liquid Cs up to 9.8 GPa

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An x-ray diffraction study of liquid Cs at high pressure and temperature has been conducted in order to characterize the structural changes associated with the complex melting curve and phase transitions observed in the solid phases [1, 2, 3, 4]. At 3.9 GPa a discontinuity in the density of the liquid accompanied by a decrease in the coordination number from about 12 to 8 marks a change between simple and non-simple liquid regime [5].

The specific volume of liquid Cs, combined with structural analysis of the diffraction data, strongly suggest the existence of an electronic hybridization above 3.9 GPa similar to that reported on compression in the crystalline phase.

Further, *ab-initio* calculations with cluster of 264 atoms confirm the structural results obtained experimentally and reinforce the hypothesis of the electronic hybridization driven by compression of the solid and of the liquid.

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